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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/761,081 | 01/20/2004 | Goro Nakatani | 12844.0013USD1 | 1400 |

7590 08/09/2006
HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
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MINNEAPOLIS, MN 55402

| EXAMINER |
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GURLEY, LYNNE ANN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2812

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/761,081 | Applicant(s) NAKATANI, GORO | |
| | Examiner Lynne A. Gurley | Art Unit 2812 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


LYNNE A. GURLEY
PRIMARY PATENT EXAMINER
TC 2800, AU 2812

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the RCE filed 5/17/06 and the amendment filed 3/14/06.

Currently, claims 9-12 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/17/06 has been entered.

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al. (US 2002/0022301, dated 2/21/02) in view of Chen et al. (US 2003/0013291m dated 1/16/03, filed 7/12/01).

Kwon shows the method substantially as claimed in figures 5-7 and corresponding text, with electrode pad 104, combined intermediate and pad layer 108 (comprises TiW) on the surface of the electrode pad; and an insulating film (passivation layer 106) which covers edges of patterns of the bonding pad and the intermediate layer (lower edges of 108).

Kwon lacks anticipation only in not teaching that the passivation layer is a resin insulating layer; that the TiW and pad layers may be sputter deposited.

Chen teaches a method which acknowledges benzocyclobutene (BCB) polymer resin as a passivation material in a similar contact structure [0022].

It would have been obvious to one of ordinary skill in the art to have used BCB as the resin insulating film, in the method of Kwon, with the motivation that Chen acknowledges that the BCB is available to one of ordinary skill in the art as a known passivation layer.

It would have been obvious to one of ordinary skill in the art to have sputtered the TiW and the pad layers, in the method of Kwon, with the motivation that sputtering is an alternative deposition process to the plating techniques taught in Kwon.

Response to Arguments

5. Applicant's arguments filed 5/17/06 have been fully considered but they are not persuasive. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

6. In response to Applicant's remarks, page 4, fourth paragraph, the structure shown in Kwon does include an electrode layer 104, an intermediate layer (one layer of the UBM layer) and a bonding pad layer (a second layer of the UBM layer). Bonding pad layers are commonly copper or gold layers. Kwon discloses that the UBM layer is a multi-layered metal [0023] with Ni, Cu, Au, Ti, TiW, Cr, NiV or other metals as layers. Although the Examiner understands Applicant's position, the Examiner takes the position that the multi-layered UBM comprises a bonding pad layer. The patterning step is taught by Kwon's acknowledgment that the UBM layer can be formed conventionally, which to one of ordinary skill in the art would also include deposition and patterning.

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7. In response to Applicant's remarks, page 4, last paragraph, forming the layers and patterning them separately is not precluded by the claim language. The process step of "patterning two structures at the same time" has not been claimed.

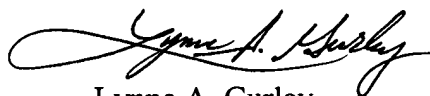
In response to Applicant's remarks, page 5, first full paragraph, Kwon teaches formation of the passivation layer on the outer interface between the intermediate layer and the bond pad layer and also teaches forming the passivation layer after the bonding pad layer is formed.

In response to Applicant's remarks, page 5, second full paragraph, neither the claimed invention nor Kwon present the situation where the UBM is deposited on the passivation layer. Chen acknowledges that the passivation layer may be made of BCB. Therefore, the replacement of the passivation layer in Kwon would be obvious to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne A. Gurley whose telephone number is 571-272-1670. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lynne A. Gurley
Primary Patent Examiner
TC 2800, Art Unit 2812

LAG
August 7, 2006